

A STUDY OF PHYSICAL FITNESS OF 12 AND 13-YEAR OLD  
SEVENTH AND EIGHTH GRADE BOYS AT WAMEGO GRADE SCHOOL

by

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## INTRODUCTION

In recent years in the United States of America, there has been an increasing interest in physical fitness. This concern was expressed by President Eisenhower during his administration and President Kennedy continued to emphasize physical fitness while he was in office. Studies and resultant statistics have indicated that there has been a distinct lowering of strength, endurance, and general vitality of our youth following World War II. This has been noticeable since the discontinuance of wartime physical training. This lack, coupled with the ever-increasing mechanization in our daily living, has created a serious problem which doctors, especially cardiologists, and physical education teachers are attempting to improve with the help of the emphasis from the President of the United States and national leaders in all fields.

A certain amount of exercise by everyone is absolutely necessary for the maintenance of good health. People have often exercised violently, but not fully. Almost everyone engages in some sort of physical game: handball, bowling, golf, or tennis. Our schools and colleges are teaching not only team games, but individual games, such as tennis, golf, and badminton, which can be continued in later years.<sup>1</sup>

In daily life, the mechanical aids to comfort, from the automobile to the power mower, have very nearly done away with the need for people to use their muscles. As a result, what our forefathers would have regarded as a relatively short walk or light exercise has become unusual work unless it is

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<sup>1</sup>Robert Kiphuth, How to be Fit (revised edition; New Haven and London: Yale University Press, 1963), pp. x-xii.

part of a game. Many of the jobs they took for granted--jobs that use big muscle groups--are simply beyond our physical condition.<sup>2</sup>

Bud Wilkinson has stated in his introduction to Kiphuth:

The evidence of our physical decline recently has been dramatized by studies comparing American and European children, by the Selective Service rejection rate, and the results of simple physical achievement tests administered in many of our schools. Many Americans have reacted with alarm, but there also has been a salutary effect. People who once regarded exercise as a sweaty business best left to the athletes are beginning to realize that it is essential to good health. Those who associate physical fitness with the bulging muscle-men cavorting on the beach now recognize it as a quality which contributes to our social and intellectual effectiveness. In short, we are awakening to the realization that man's physical function is subtly related to his mental, moral, and spiritual processes. What affects one affects the other.<sup>3</sup>

The question is frequently asked, "What is meant by physical fitness?" Technically, physical fitness involves measures and levels of muscular strength and endurance, muscle tone, heart action, and response to activity, agility, balance, and co-ordination. Fitness is also a personal thing: it is how one feels when he gets up in the morning, and how tired or fresh a person feels after a hard day's work. It is how eagerly one looks forward to doing things one likes to do or those things that have to be done. Research has shown that the physically fit person is able to withstand fatigue for longer periods of time than the unfit. The physically fit person is better equipped to tolerate physical stress, and has a stronger and more efficient heart. There is a relationship between good mental alertness, absence of nervous tension, and

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<sup>2</sup>Ibid.

<sup>3</sup>Ibid., p. ix.

physical fitness. Weak stomach muscles cause sagging abdomens and weak back muscles are a major cause of back pain.<sup>4</sup>

Richard Pickens has said in The NFL Guide to Physical Fitness that physical fitness cannot be measured in terms of strength, speed, endurance, or skill alone. Can you determine your physical condition by the number of push-ups you can perform or by the ease by which you lift a two hundred pound barbell over your head? No. True fitness can only be judged according to the individual man--by his physical ability related to his age, state of health, occupation, and history of exercise--as well as his daily living habits.

With an investment of time, patience, and energy, virtually any person can develop a better-looking body, greater strength, endurance, and suppleness, and wake up in the morning feeling confident and optimistic.

The words speed, endurance, and strength must be defined not in terms of comparison to others, but in terms of the individual and the muscles one must call upon to perform particular skills.<sup>5</sup>

The phrase "physically fit" describes a high level of health and body condition, attained by the sensible and consistent application of body-building and exercise, co-ordinated with the will to succeed, proper dietary procedures, good posture, and the necessary amount of sleep to balance one's daily life.<sup>6</sup>

Physical fitness is defined by the Subcommittee of the Baruch Committee on Physical Medicine as "...the functional capacity of the individual for a task. It has no real meaning unless the task or job for which fitness is to be

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<sup>4</sup>Royal Canadian Air Force Plans for Physical Fitness (New York: Pocket Books, Inc., 1962), p. 5.

<sup>5</sup>Richard Pickens (ed.), The NFL Guide to Physical Fitness (New York: Random House, Inc., 1965), p. 9.

<sup>6</sup>Ibid., p. 18.

judged is specified." A functional description of physical fitness advanced by Bruno Balke, a medical doctor, is that "physical fitness depends on the individual's biodynamic potential which is composed of his functional and of his metabolic potential--the best test of physical fitness would be man's ability to survive under extraordinary biological demands." K. Lang Anderson, a medical doctor employed at the Institute of Work Physiology in Oslo, Norway, has defined physical fitness as the "ability for respiration and circulation to recover from a standard work load."<sup>7</sup>

Definitions of physical fitness given by physical educators who are members of the National Conference of Physical Educators wrote that "physical fitness...refers to the capacity for physical performance and survival, founded on basic health." Other physical educators state that physical fitness can be described as the total functional capacity of an individual to perform a certain task. "The ultimate test of physical fitness is the ability of the individual to carry a desired task to successful completion without undue fatigue."

According to Stafford and Duncan, physical fitness is composed of qualities best represented by strength, power, speed, skill, and endurance for the task, plus proper enthusiasm (mental equilibrium, moral, and mind-set) as shown in the feeling of responsibility for continued effort necessary for the completion of the task.<sup>8</sup>

#### PURPOSE OF TESTING FOR PHYSICAL FITNESS

Until the past two years, there has been no full-time organized physical education classes in the Wamego Grade School. Limited equipment was available

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<sup>7</sup>Donald R. Casady, Donald F. Mapes, and Louis E. Alley, Handbook of Physical Fitness Activities (New York: The Macmillan Company, 1965), pp. 6-8.

<sup>8</sup>Ibid., p. 8.



the first year, with the addition of a few basic items the second year. The physical fitness tests, as prepared by the President's Council on Youth Fitness, published in Youth Physical Fitness in July, 1961, were to determine needs for the program as well as improvement.

By using the 12 and 13-year old boys in the seventh and eighth grades who had been active in the full-time program in physical education, this testing would show if there was a need for more equipment and more area to carry on the program. The tests were also designed to measure strength, endurance, and agility of the student, and to give each an opportunity to self-evaluate themselves with the rest of the class as well as with those on a national scale.

Another purpose of the tests was to give an insight into how the physical education program may be improved. Without this test, the insight could only be acquired through observation.

#### PURPOSE OF THE PROBLEM

The following were chief reasons for testing the boys: (1) to help determine the needs for the physical education program at the Wamego Grade School, (2) to determine how the 12 and 13-year old boys at Wamego Grade School compared to other boys of the same age throughout the nation, and (3) to collect data which can be used in the improvement of physical fitness in the state of Kansas and the United States.

#### DEFINITION OF TERMS

These terms have been used in this problem and should be defined to avoid misunderstandings:

1. Unsatisfactory----used to represent the scores that fell below the "poor" category that was established by the President's Council on Youth Fitness.

2. Starters-----individuals who stood at the start of the 50-yard dash and the 600-yard run--walk and set the runners off. The words "go to your marks, set, go" and the drop of the hand at the same time constituted starting the watches to time the runners.
3. Mean-----the arithmetical mean formed by adding the quantities together and dividing by their number.<sup>9</sup>
4. Pickers-----individuals who stood at the finish of the 600-yard run--walk and picked the runners in the order that they finished the race.

#### ADMINISTRATION OF THE TESTS

The Youth Physical Fitness tests were administered in the fall during the second week of September, 1965, and in the spring during the first week of May, 1966, to the Wamego Grade School physical education classes. These classes included the 12 and 13-year old boys in the seventh and eighth grades.

There were twenty-eight 13-year old boys and thirteen 12-year old boys at the beginning of the school term. Of the twenty-eight 13-year old boys tested, twenty-four were tested in the spring; two boys moved to other areas, one boy broke his arm, and one was hospitalized for an appendectomy. None of the thirteen 12-year old boys missed either the fall or spring tests. Although all the boys in the physical education classes were tested, the results of the tests of the 12 and 13-year old boys only were used in this problem.

#### NORMS USED IN THIS PROBLEM

The physical fitness norms used have been determined by the President's

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<sup>9</sup>Webster's New Collegiate Dictionary (Springfield, Massachusetts: G. and C. Merriam Co., 1963), p. 520.

Council on Youth Fitness. The standards of performance have been validated.<sup>10</sup>

The President's Council on Youth Fitness has established minimum requirements for these tests on four levels: "Excellent", "Good", "Satisfactory", "Poor", and those who fall below these lines are categorized as "Unsatisfactory".

TABLE I.  
SAMPLE PHYSICAL FITNESS TESTING SCORE SHEET<sup>11</sup>  
(For Boys 12 Years of Age)

Pupil \_\_\_\_\_ School \_\_\_\_\_ Teacher \_\_\_\_\_

1st test-Circle scores in RED. 2nd test-Circle scores in GREEN. 3rd test-Circle scores in BLUE.

	Situps	Pullups	Broad Jump	50-Yard Dash	Shuttle Run	Softball Throw	600- Yard
EXCELLENT	78	7	6'2"	7.0	10.0	151'	2:5
	77					150'	
	74	6	6'1"	7.1	10.1	148'	2:6
	71		6'0"			146'	2:8
	68	5		7.2	10.2	144'	2:10
GOOD	65		5'11"			142'	2:12
	62	4	5'10"	7.3	10.3	140'	2:14
	59		5'9"			138'	2:16
	56	3		7.4	10.4	136'	2:18
	53		5'8"			134'	2:19
	51			7.5	10.5	132'	
	49		5'7"			130'	2:20
	47			7.6	10.6	128'	2:22
	45		5'6"	7.7	10.7	126'	2:24
SATISFACTORY	43	2		7.8	10.8	124'	2:26
	41		5'5"	7.9	10.9	122'	2:28
	39			8.0	11.0	120'	2:30
	37		5'4"		11.1	118'	2:32
	35		5'3"	8.1	11.2	116'	2:34
	33		5'2"		11.3	114'	2:36
	31		5'1"	8.2	11.4	112'	2:38
GOOD	29	1	5'0"		11.5	110'	2:40
	28		4'11"	8.3	11.6	108'	2:42
					11.7	106'	2:44
						104'	2:46
						102'	
UNSATISFACTORY							

<sup>10</sup>President's Council on Youth Fitness, Youth Physical Fitness, Suggested Elements of a School-Centered Program, Parts One and Two (Washington: Government Printing Office, July, 1961), pp. 8-9.

<sup>11</sup>Ibid., pp. 44-55.

TABLE II.  
SAMPLE PHYSICAL FITNESS TESTING SCORE SHEET<sup>12</sup>  
(For Boys 13 Years of Age)

Pupil \_\_\_\_\_ School \_\_\_\_\_ Teacher \_\_\_\_\_

1st test—Circle scores in RED. 2nd test—Circle scores in GREEN. 3rd test—Circle scores in BLUE.

	Situps	Fullups	Broad Jump	50-Yard Dash	Shuttle Run	Softball Throw	600- Yard
EXCELLENT	73	8	6'8"	6.5	9.7	171'	2:0
	72					169'	
	70	7	6'7"	6.6	9.8	167'	2:1
	68		6'6"	6.7		165'	2:3
	66	6	6'5"	6.8	9.9	163'	2:5
GOOD	64		6'4"	6.9		161'	2:7
	62	5	6'3"	7.0	10.0	159'	2:9
	60		6'2"	7.1		157'	2:11
	58	4	6'1"	7.2	10.1	155'	2:13
	56		6'0"			153'	
	54				10.2	151'	
						149'	
						148'	
	52					147'	
	50		5'11"	7.3	10.3	145'	2:15
	48				10.4	143'	2:17
	46		5'10"	7.4	10.5	141'	2:19
SATISFACTORY	44	3			10.6	139'	2:21
	42		5'9"	7.5	10.7	137'	2:23
	40				10.8	135'	2:25
			5'8"	7.6		133'	
						131'	
						129'	
	38		5'7"	7.7	10.9	127'	
	36		5'6"		11.0	125'	2:27
	34		5'5"	7.8	11.1	123'	2:29
	32	2	5'4"		11.2	121'	2:31
POOR	30		5'3"	7.9	11.3	119'	2:33
			5'2"		11.4	117'	2:35
				8.0	11.5	115'	2:36
UNSATISFACTORY							

#### TESTS AND RESULTS

The following seven events have been determined by the President's Council

<sup>12</sup>Ibid.

on Youth Fitness and were used in this report: (1) pullups, (2) situps, (3) shuttle run, (4) standing broad jump, (5) 50-yard dash, (6) softball throw for distance, and (7) 600-yard run--walk. The methods of administering the tests during each event and the results are shown below. For purposes of comparison, each table is arranged with the results of the 12-year old boys first, and the results of the 13-year old boys following.<sup>13</sup>

# I. PULLUPS

The Wamego Grade School boys were tested for pullups using a horizontal bar. The bar was raised to a height beyond the reach of the tallest boy in the class. For the boys who could not reach the bar, aid was provided by other students. The student was instructed to have his arms extended full length to start, and one pullup was counted each time he pulled himself up and his chin was placed over the bar. No kicking or swinging was allowed. A student stood to the side and slightly behind the student and checked any swinging done by the pupil.

TABLE III. PULLUP RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	1	7.7	0	0.0
GOOD	3	23.1	6	46.1
SATISFACTORY	2	15.4	4	30.8
POOR	1	7.7	0	0.0
UNSATISFACTORY	6	46.1	3	23.1
TOTAL	13	100.0	13	100.0

<sup>13</sup>Ibid., pp. 8-9.

TABLE IV. PULLUP RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	3	12.5	3	12.5
GOOD	6	25.0	7	29.2
SATISFACTORY	4	16.7	4	16.7
POOR	4	16.7	5	20.8
UNSATISFACTORY	7	29.1	5	20.8
TOTAL	24	100.0	24	100.0

The mean number of pullups for the 12-year old boy in the fall was 2.0 and the mean number in the spring was 2.46. This ranked them in the "satisfactory" category. The most pullups that were done by any student was 7 in the fall, but the same boy only did 5 in the spring. The fewest pullups done was 0. Of the two students who did not do any pullups in the fall, one improved by 2 in the spring, and the other improved by 3. Three boys did not improve any from fall to spring. There was one "excellent" in the fall and no "excellent" in the spring.

The mean number of pullups for 13-year old boys was 3.17 in the fall, and 3.38 in the spring. This ranked them in the "satisfactory" category. The most pullups that were done by any boy was 8, which was "excellent". Three boys performed "excellent" in the fall, and the same three boys did "excellent" in the spring. The fewest pullups that were done was 0. Six boys did no pullups and one boy did 1. Four of these six boys doing none in the fall also did none in the spring, while each of the remaining students did 2. The boy who did 1 in the fall increased his number to 3 in the spring.

## II. SITUPS

In testing the Wamego Grade School boys in situps, groups of two were formed. One boy held the ankles and counted while his partner assumed the proper position and performed, after which they exchanged positions. The procedure for the situps was to lie flat on the back, hands clasped behind the head, and legs straight with the feet slightly apart. The boy, then, was to raise forward to a situp position and touch his right elbow to his left knee, return to the original position, sit up, and touch his left elbow to his right knee. One situp was counted when the boy returned to the original position. The pupils were told to do as many as they could, but not to exceed the maximum number. The maximum number for 12-year old boys was 78; for 13-year old boys, 73.

TABLE V. SITUP RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	10	76.9	12	92.3
GOOD	1	7.7	0	0.0
SATISFACTORY	2	15.4	0	0.0
POOR	0	0.0	1	7.7
UNSATISFACTORY	0	0.0	0	0.0
TOTAL	13	100.0	13	100.0

TABLE VI. SITUP RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	19	79.1	19	79.1
GOOD	1	4.2	3	12.5
SATISFACTORY	1	4.2	1	4.2
POOR	1	4.2	1	4.2
UNSATISFACTORY	2	8.3	0	0.0
TOTAL	24	100.0	24	100.0

The mean number of situps for the 12-year old boys in the fall was 71.23, which ranked them high in the "good" category; the mean number in the spring, 74.62, which ranked them just 3.38 situps below "excellent". The same ten boys who ranked "excellent" in the fall also ranked "excellent" in the spring. The two boys who performed "excellent" in the spring, but not in the fall, had 54 and 43, respectively, in the fall. One boy dropped from 49 in the fall to 34 in the spring; all the rest of the boys improved from the fall to the spring.

The mean number of situps for the 13-year old boys in the fall was 65.29, which placed them in the "good" category, and the mean number of situps in the spring was 69.12, which was also in the "good" category. Nineteen boys did "excellent" in the fall test and nineteen boys did "excellent" in the spring test. However, two boys in the fall fell below their rank in the spring, and two boys improved: one from 11 to 71, and one from 70 to 73. There were two boys ranking "unsatisfactory" in the fall with none ranking "unsatisfactory" in the spring. One boy ranking "unsatisfactory" in the fall improved from 23 to 32 in the spring tests.



## III. SHUTTLE RUN

The students were tested in the shuttle run on the gymnasium floor. Two parallel lines were drawn 30 feet apart. Two blocks of wood 2" by 4" were placed on one line. Each student started from a standing position behind the other line. On the signals "go to your marks, set, go", each testee would run to the far line, pick up a block, and carry it back to the starting line where it was laid down on the floor. This same maneuver was repeated with the second block. Each student was given two trials and the best time was recorded to the nearest tenth of a second. The time was disallowed if the block was thrown or dropped behind the starting line.

TABLE VII. SHUTTLE RUN RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	2	15.4	2	15.4
GOOD	4	30.8	7	53.8
SATISFACTORY	5	38.4	4	30.8
POOR	1	7.7	0	0.0
UNSATISFACTORY	1	7.7	0	0.0
TOTAL	13	100.0	13	100.0

TABLE VIII. SHUTTLE RUN RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	2	8.3	5	20.8
GOOD	10	41.7	12	50.0
SATISFACTORY	6	25.0	4	16.7

TABLE VIII (continued)

POOR	6	25.0	3	12.5
UNSATISFACTORY	0	0.0	0	0.0
TOTAL	24	100.0	24	100.0

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The mean time for the shuttle run for the 12-year old boys in the fall test was 10.65 seconds, which ranked them in the "satisfactory" category, 1.5 seconds below the "good" category. In the spring test, the mean time was 10.45, which ranked the boys in the "good" category. The best time in the fall was 9.5; in the spring, 9.6, with the same boy performing both of these. The slowest time in the fall was 12.3, but the same boy improved to 10.9 in the spring test. The slowest time in the spring was 11.6, and this boy had a time of 12.2 in the fall.

The mean time in the shuttle run for the 13-year old boys in the fall was 10.35, which ranked them as a group in the "satisfactory" category, 1.5 seconds away from the "good" category. However, in the spring, the time was 10.16 seconds which ranked them in the "good" category. The best time recorded in the fall was 9.5, with the same boy recording a time of 9.4 seconds in the spring. Three boys recorded 9.4 seconds in the spring. One boy recorded 9.5 seconds compared to the rank of 9.7 in the "excellent" category. The slowest time recorded was 11.4 in the fall, with the same boy running 11.3 in the spring.

#### IV. STANDING BROAD JUMP

The out-of-bounds line on the gymnasium floor was used to test the standing broad jump. Each student was allowed three jumps, and his longest jump was measured from the starting line to where the heels hit the floor and was recorded

to the nearest inch. If the testee stepped over the starting line, it was a foul jump and no measurement was taken.

TABLE IX. STANDING BROAD JUMP RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	1	7.7	3	23.1
GOOD	6	46.1	4	30.8
SATISFACTORY	2	15.4	5	38.4
POOR	3	23.1	1	7.7
UNSATISFACTORY	1	7.7	0	0.0
TOTAL	13	100.0	13	100.0

TABLE X. STANDING BROAD JUMP RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	2	8.4	5	20.8
GOOD	11	45.8	9	37.5
SATISFACTORY	3	12.5	3	12.5
POOR	5	20.8	3	12.5
UNSATISFACTORY	3	12.5	4	16.7
TOTAL	24	100.0	24	100.0

The mean jump for the 12-year old boys in the fall was 5'7 1/8", which ranked them in the "satisfactory" category, 7/8" from the "good" category. The mean jump in the spring test was 5'9 3/8" which ranked them in the "good" category. The longest jump in the fall was 6'11", and the same boy had the longest

jump in the spring with 6'8". The shortest jump in the fall was 4'8", and the same boy jumped 5'4" in the spring.

The mean jump for the 13-year old boys' broad jump in the fall was 5' 10 3/4", which ranked them in the "satisfactory" category, and the mean jump in the spring test was 6'0 5/8", which ranked them in the "good" category. The longest jump in the fall was 6'10", with the same boy jumping 7'0" in the spring. Three boys jumped 6'10" in the spring, and two boys jumped 7'0". The shortest jump was 4'7" in the fall, the same boy jumping 4'8" in the spring.

#### V. FIFTY-YARD DASH

The fifty-yard dash was run on a concrete slab located behind the Wamego Grade School. The students ran in pairs and started behind a line at one end of the slab. The students were given one trial and timed to the nearest tenth of a second. The starter stood in front and to the side of the runners, raised his hand, and, on signal "go to your marks, set, go", dropped his hand. The watches were then started and stopped as the runners crossed the finish line.

TABLE XI. FIFTY-YARD DASH RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	0	0.0	1	7.7
GOOD	2	15.4	5	38.4
SATISFACTORY	6	46.1	6	46.2
POOR	4	30.8	1	7.7
UNSATISFACTORY	1	7.7	0	0.0
TOTAL	13	100.0	13	100.0

TABLE XII. FIFTY-YARD DASH RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	0	0.0	3	12.5
GOOD	7	29.1	8	33.4
SATISFACTORY	9	37.5	7	29.1
POOR	4	16.7	4	16.7
UNSATISFACTORY	4	16.7	2	8.3
TOTAL	24	100.0	24	100.0

The mean time in the fifty-yard dash in the fall for 12-year old boys was 7.95 seconds which put them in the "satisfactory" category. This was just 1.5 seconds above the "poor" category. The spring mean time improved at 7.57 seconds, which was in the "good" category, .3 second above the "satisfactory" category. The fastest time recorded in the fall was 7.1 seconds, and the same boy recorded a 6.9 seconds in the spring. The slowest time was recorded at 8.8 seconds, with the same boy recording 8.2 seconds in the spring. This was the slowest time in both the fall and spring.

The mean time in the fifty-yard dash test in the fall for the 13-year old boys was 7.64 seconds, which placed them in the "satisfactory" category. The mean spring time was 7.32 seconds, which also placed them in the "satisfactory" category, just .8 second from the "good" category. The fastest time run in the fall was 7.0 seconds, the same boy recording 6.5 seconds in the spring. Three boys ran 6.5 seconds in the spring, and three recorded 7.0 seconds to 7.1 seconds in the fall. Two boys ran 6.8 seconds and two boys ran 6.9 seconds in the spring. The slowest time recorded was 9.4 seconds and the same boy recorded

8.9 seconds in the spring. Four boys ranked in the "unsatisfactory" category in the fall, while only two ranked "unsatisfactory" in the spring.

#### VI. SOFTBALL THROW FOR DISTANCE

In testing for the softball throw for distance, the football field of Wamego Rural High School was used since it was marked off every five yards. The student stood behind a restraining line which was the goal-line. The student would approach the restraining line, and, throwing the ball in an overhand fashion, throw as far as he could. The point at which the ball touched the ground was marked, and the longest of three throws was measured and recorded to the nearest foot.

TABLE XIII. SOFTBALL THROW FOR DISTANCE RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	1	7.7	1	7.7
GOOD	2	15.4	4	30.8
SATISFACTORY	4	30.8	6	46.1
POOR	5	38.4	2	15.4
UNSATISFACTORY	1	7.7	0	0.0
TOTAL	13	100.0	13	100.0

TABLE XIV. SOFTBALL THROW FOR DISTANCE RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	0	0.0	3	12.5
GOOD	6	25.0	5	20.8

TABLE XIV (continued)

SATISFACTORY	7	29.2	10	41.7
POOR	6	25.0	5	20.8
UNSATISFACTORY	5	20.8	1	4.2
TOTAL	24	100.0	24	100.0

The mean score for the fall softball throw for the 12-year old boys was 118'7 1/2", which ranked them in the low "satisfactory" category. The mean score for the spring softball throw for the 12-year old boys was 129'1 7/8", which ranked them in the high "satisfactory" category. The longest throw in the fall was 154'0", and the same boy threw the farthest in the spring at 181'0". The shortest throw in the fall was 80'0", and the same boy threw the shortest distance in the spring, although he improved 22' at 102'0". One boy was in the "unsatisfactory" category in the fall, while no one was "unsatisfactory" in the spring.

The mean score for the fall softball throw for the 13-year old boys was 130'4", which ranked them in the low "satisfactory" category, and the mean score for the softball throw in the spring was 142'7", which also ranked them in the "satisfactory" category. The longest throw in the fall was 167'0", while another boy had the longest throw in the spring with 206'0". The shortest throw in the fall was 90'0", and the same boy threw the shortest in the spring with 95'0", both in the "unsatisfactory" category. Five boys were "unsatisfactory" in the fall, while only one was "unsatisfactory" in the spring.

#### VII. 600-YARD RUN--WALK

The 600-yard run--walk was run on the Wamego Rural High School track.

The distance was marked off and the boys ran two at a time. The starter's hand was raised and with the same type of starting signal that was used in the fifty-yard dash--"go to your marks, set, go"--the hand was dropped as the signal for starting the watches. As the runners came across the finish line, the pickers picked the runners, and the time was recorded in minutes and seconds.

TABLE XV. 600-YARD RUN--WALK RESULTS FOR 12-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	6	46.2	7	53.9
GOOD	5	38.4	5	38.4
SATISFACTORY	2	15.4	1	7.7
POOR	0	0.0	0	0.0
UNSATISFACTORY	0	0.0	0	0.0
TOTAL	13	100.0	13	100.0

TABLE XVI. 600-YARD RUN--WALK RESULTS FOR 13-YEAR OLD BOYS

	FALL		SPRING	
	No.	%	No.	%
EXCELLENT	7	29.2	14	58.3
GOOD	11	45.8	7	29.2
SATISFACTORY	3	12.5	2	8.3
POOR	1	4.2	1	4.2
UNSATISFACTORY	2	8.3	0	0.0
TOTAL	24	100.0	24	100.0

The mean time recorded for the 600-yard run--walk for 12-year old boys



in the fall was 2 minutes 8 seconds, which ranked them in the high "good" category. The mean time recorded in the 600-yard run--walk in the spring was 2 minutes 6.5 seconds, which ranked them in the high "good" category, only .9 second from "excellent". The best time recorded in the fall was 1 minute 58 seconds, the same boy running 1 minute 55 seconds in the spring. The best time in the spring was 1 minute 50 seconds, which was run by a boy who ran 2 minutes 2 seconds in the fall. The slowest time in the fall was 2 minutes 22 seconds, the same boy running 2 minutes 14 seconds in the spring. The slowest time in the spring was 2 minutes 32 seconds, with the same boy running 2 minutes 6 seconds in the fall. No 12-year old boys were "unsatisfactory" or "poor" in the 600-yard run--walk in either the fall or spring.

The mean time for the 600-yard run--walk for the 13-year old boys in the fall was 2 minutes 9 seconds, which ranked them in the "good" category, and the mean time in the spring test was 1 minute 58 seconds, which ranked them in the "excellent" category, 2 seconds faster than the minimum time of 2 minutes 0 seconds for "excellent". The fastest time in the fall was 1 minute 48 seconds. The same boy ran 1 minute 36 seconds in the spring. Seven boys ran under 2 minutes 0 seconds in the fall, and fourteen boys ran under 2 minutes 0 seconds in the spring test. The slowest time in the fall was 2 minutes 48 seconds, and the same boy ran the slowest time in the spring, but ran 12 seconds faster at 2 minutes 36 seconds. One boy recorded a time of 2 minutes 44 seconds in the fall, but ran a remarkable time in the spring test of 1 minute 57 seconds.

#### SUMMARY

The results of the fall testing program showed that the 12 and 13-year old boys in the Wamego Grade School were in the "satisfactory" category in five of the seven events, and in the "good" category in the remaining two. The

latter events were the situps and the 600-yard run--walk. The tests requiring the use of the arms and shoulders--pullups and the softball throw for distance--were in the "satisfactory" category, but the performance could have been better. The overall picture in the fall showed that the 12 and 13-year old boys ranked in the "satisfactory" category.

The results of the spring tests showed that the boys also averaged in the "satisfactory" category, but improved in all events. The 12-year old boys tested "good" in five of the seven events. The two events where they ranked "satisfactory" were the pullups and the softball throw for distance. The 13-year old boys tested "good" in three of the seven events, "satisfactory" in pullups, fifty-yard dash, and the softball throw for distance, and ranked "excellent" in the 600-yard run--walk.

TABLE XVII. SUMMARY OF FALL AND SPRING TESTS MEAN SCORES  
FOR 12-YEAR OLD BOYS

	MEAN	
	FALL	SPRING
PULLUPS	2	2.46
SITUPS	71.23	74.62
SHUTTLE RUN	10.65 seconds	10.45 seconds
STANDING BROAD JUMP	5'7 1/8"	5'9 3/8"
FIFTY-YARD DASH	7.95 seconds	7.57 seconds
SOFTBALL THROW	118'7 1/2"	129'1 7/8"
600-YARD RUN--WALK	2 minutes 8 seconds	2 minutes 6.5 seconds

TABLE XVIII. SUMMARY OF FALL AND SPRING TESTS MEAN SCORES  
FOR 13-YEAR OLD BOYS

	MEAN	
	FALL	SPRING
PULLUPS	3.17	3.38
SITUPS	65.29	69.12
SHUTTLE RUN	10.35 seconds	10.16 seconds
STANDING BROAD JUMP	5'10 3/4"	6'0 5/8"
FIFTY-YARD DASH	7.64 seconds	7.32 seconds
SOFTBALL THROW	130'4"	142'7"
600-YARD RUN--WALK	2 minutes 9 seconds	1 minute 58 seconds

#### CONCLUSIONS

It was concluded that the Wamego Grade School boys ranked consistently high in the Youth Physical Fitness test comparisons of other boys of the same age in the nation. It was also concluded that a full-time physical education program is beneficial in grade school after comparing results from fall to spring.

The running events ranked highest for both the 12 and 13-year old boys. The pullups and softball throw for distance ranked the lowest of the seven tested events. Attention, therefore, should be focused on the development of muscles of the arms and shoulders which, in time, should improve the performance. It is apparent that the addition of more climbing ropes and chinning bars is desirable.

Since most of the Wamego Grade School physical education program is confined to the gymnasium area, it would be most desirable if outside playground area with equipment could be made available. In addition, since the program is

relatively new, more inside equipment should be obtained to aid in the development of the entire program for both boys' and girls' physical education classes.

A copy of this report will be made available to the state consultant of physical education to be used in the establishment of norms for the state of Kansas.

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A STUDY OF PHYSICAL FITNESS OF 12 AND 13-YEAR OLD  
SEVENTH AND EIGHTH GRADE BOYS AT WAMEGO GRADE SCHOOL

by

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Physical Education

KANSAS STATE UNIVERSITY  
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In recent years in the United States of America, there has been an increasing interest in physical fitness. This concern was expressed by President Eisenhower during his administration, and President Kennedy continued to emphasize physical fitness while he was in office. Studies and resultant statistics have indicated that there has been a distinct lowering of strength, endurance, and general vitality of our youth following World War II. This has been particularly noticeable since the discontinuance of wartime physical training. This lack of physical training, coupled with the ever-increasing mechanization in our daily living, has created a serious problem which doctors, especially cardiologists, and physical education teachers are attempting to improve with the help of the emphasis from the President of the United States and national leaders in all fields.

Definitions of physical fitness given by physical educators who are members of the National Conference of Physical Educators are that "physical fitness...refers to the capacity for physical performance and survival, founded on basic health." Other physical educators state that physical fitness can be described as the total functional capacity of an individual to perform a certain task. "The ultimate task of physical fitness is the ability of the individual to carry a desired task to successful completion without undue fatigue."

The physical fitness tests, as prepared by the President's Council on Youth Fitness, published in Youth Physical Fitness in July, 1961, were administered during the 1965-1966 school year. The tests were given to 12 and 13-year old students in the seventh and eighth grades at the Wamego Grade School.

This problem has been undertaken in order to assist in accomplishing the following tasks: (1) to help determine the physical needs for the physical

education program at the Wamego Grade School, (2) to determine how the 12 and 13-year old boys at the Wamego Grade School compared to other boys of the same age throughout the nation, and (3) to collect data which can be used in the improvement of physical fitness in the state of Kansas and the United States.

The events used in the physical fitness tests were: (1) pullups (2) situps, (3) shuttle run, (4) standing broad jump, (5) 50-yard dash, (6) softball throw for distance, and (7) 600-yard run--walk. The norms used for comparison were established by the President's Council on Youth Fitness.

The fall physical fitness tests revealed that the 12 and 13-year old boys ranked high in comparison to the national norms. The group ranked "satisfactory" in five of the seven events, and in the "good" category in the remaining two events--situps and the 600-yard run--walk. The overall picture in the fall showed the 12 and 13-year old boys ranked in the "satisfactory" category.

The results of the spring tests showed that the boys averaged in the "satisfactory" category, again ranking consistently high in comparison to the national norms. They did, however, improve in all events. The 12-year old boys tested "good" in five of the seven events. The two events where they ranked "satisfactory" were the pullups and the softball throw for distance. The 13-year old boys tested "good" in three of the seven events, "satisfactory" in pullups, 50-yard dash, and the softball throw for distance, and "excellent" in the 600-yard run--walk.

Improvement is needed in most of the seven events. Greater attention needs to be focused on the development of muscles of the arms and shoulders which, in time, should improve the performance. It is apparent that more climbing ropes, chinning bars, medicine balls, and peg boards are equipment that is needed in the physical education program.



The results of this study will be made available to the state consultant of physical education to be used in the establishment of norms for the state of Kansas.